

## REMARKS

Favorable consideration and allowance are respectfully requested for Claims 13, 15-22 and 35 in view of the foregoing amendments and the following remarks.

Applicants hereby confirm the election of Species I, including an inflow layer of synthetic fibers. Regarding the withdrawal of new Claim 35 from consideration as being directed to a non-elected species, it is respectfully submitted that this is in error since independent Claim 35 is generic to Species I and Species II. In particular, independent Claim 35 recites that the inflow layer can comprise synthetic fibers, which encompasses the invention of Species I. Accordingly, it is respectfully submitted that independent Claim 35 be considered along with Claims 13 and 15-22 corresponding to Species I.

In view of the cancellation of Claims 23 and 24, it is respectfully submitted that the objection to the drawings under 37 C.F.R. §1.83(a) and the rejection of Claims 23 and 24 under 35 U.S.C. §112, first paragraph, is moot.

Regarding the alleged new matter contained in Claim 21, it is respectfully requested that this objection be withdrawn since the subject matter of Claim 21 was described in original Claim 11 as it depended from original Claim 1 (see English translation of the present application). Accordingly, it is respectfully submitted that the objection to Claim 21 be withdrawn.

Regarding the rejection of Claims 14, 16 and 18-20 under 35 U.S.C. §112, first paragraph, it is respectfully submitted that it would have been within the skill level of one of ordinary skill in the art (i) to produce filter layers having different weights per unit area, and (ii) to join filter layers utilizing various different joining processes. In particular, it is respectfully submitted that one of ordinary skill in the art would have known that the weight of filter paper can be changed by depositing more or less paper mass on a sieve. Moreover, it is

respectfully submitted that one of ordinary skill in the art would have known that the weight of melt-blown nonwoven webs can be changed by altering the length of the thin fibers of fabric which are sprayed on the surface thereof. Moreover, methods for joining layers of different materials by way of ultrasound, folding or gluing would have been known by one of ordinary skill in the art. Accordingly, it is respectfully requested that the rejection of Claims 14, 16 and 18-20 under 35 U.S.C. §112, first paragraph, be withdrawn.

By way of the foregoing amendments, Claims 13 and 21 have been amended to overcome the rejection of Claims 13-24 under 35 U.S.C. §112, second paragraph. In particular, regarding the use of "calandared" and "compressed", independent Claim 13 has been amended to recite a "compressed" filter paper. Regarding the alleged ambiguous use of the phrase "predominantly cellulose-containing filter paper", it is respectfully submitted that the term "predominantly" has the ordinary meaning of more than 50%. Regarding the alleged ambiguities in Claim 21, this claim has been amended to recite "up to but not including 50%". Accordingly, it is respectfully requested that the rejection of Claims 13-24 under 35 U.S.C. §112, second paragraph, be withdrawn.

Claims 13, 15, 16-18, 21 and 23 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 4,976, 858 (Kadoya). Claims 14, 18, 19 and 24 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kadoya. Claim 20 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kadoya in view of Japanese Patent Document 63-278517 (JP '517). Claim 22 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kadoya in view of U.S. Patent No. 4,033,881 (Pall) or U.S. Patent No. 6,077,391 (Girondi).

By way of the foregoing amendments, Applicants have incorporated subject matter of dependent Claim 14 into independent Claim 13, thereby obviating §102 rejection of Claims 13, 15, 16-18, 21 and 23 in view of Kadoya.

The following remarks are directed to amended independent Claim 13 and Claims 15-22 depending therefrom, as well as amended independent Claim 35. For the reasons set forth hereinafter, Applicants respectfully submit that these claims are patentably distinguishable over the cited references when considered separately or in combination.

The present invention relates to a filter element comprising a plurality of filter medium layers joined together such that a fluid to be filtered flows successively through the layers in a flow direction commencing with an inflow layer and ending with a discharge layer. In a preferred embodiment, the filter element comprises successive layers in the flow direction which exhibit an increasing degree of separation and a decreasing storage capacity for particles to be filtered out of the fluid. The inflow layer is comprised of synthetic fibers of a melt-blown nonwoven web with a weight per unit area of approximately 15 to 150 g/m<sup>2</sup>, and the discharge layer is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>.

The filter element of the present invention provides various advantages. For example, it provides improved filtering which can be maintained over an extended period of time. At least these advantages are achieved by providing the filter element with an inflow layer which is comprised of synthetic fibers of a melt-blown nonwoven web with a weight per unit area of approximately 15 to 150 g/m<sup>2</sup>, and a discharge layer which is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>. As a result of these combination of features, in contrast to known

filtering arrangements, the entire filter volume is used for particle separation with filter fineness increasing in the flow direction, and the functions of foldability, support for the synthetic layer and very fine filtration being integrated in the cellulose layer located on the outflow side. Moreover, the use of a melt-blown non-woven web for the inflow layer is advantageous since it provides a very high storage capacity for particles filtered from the fluid while having a low resistance to flow.

Kadoya discloses various embodiments of a filter medium 1. In a first embodiment as shown in Figure 1, in a direction of flow, the filter medium 1 comprises a layer of non-woven fabric 5 and a layer of filter paper 2. In a second embodiment as shown in Figure 3, in a direction of flow, the filter medium 1 comprises two layers of non-woven fabric 5a, 5b and a layer of filter paper 2, with the upper layer 5a having a lower fiber density than the lower layer 5b. In a third embodiment as shown in Figure 5, in a direction of flow, the filter medium 1 comprises two layers 5a, 5b of non-woven fabric 5 and a layer of filter paper 2, the upper layer 5a having a higher fiber density than the lower layer 5b. In a fourth embodiment as shown in Figure 6, in a direction of flow, the filter medium 1 comprises three layers of non-woven fabric 5a, 5b, 5c having fiber densities which increase in the direction of flow, and a layer of filter paper 2.

Therefore, in contrast to the present invention, Kadoya does not disclose a filter element having a combination of features including an inflow layer which is comprised of synthetic fibers of a melt-blown non-woven web with a weight per unit area of approximately 15 to 150 g/m<sup>2</sup>, and a discharge layer which is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>, as currently set forth in independent Claim 13.

Furthermore, it is respectfully submitted that there is nothing in Kadoya that would have provided one of ordinary skill in the art the necessary suggestion or motivation for modifying the disclosed filter mediums to have an inflow layer comprised of synthetic fibers of a melt-blown non-woven web and a discharge layer comprised of a predominantly cellulose-containing compressed filter paper, each having a weight per unit area as currently set forth in independent Claim 13.

Moreover, it is respectfully submitted that none of the disclosures of JP '517, Pall or Girondi overcomes the noted shortcomings of Kadoya in relation to currently pending independent Claim 13. Accordingly, it is respectfully submitted that independent Claim 13 and Claims 15-22 depending therefrom define subject matter not described or made obvious by the cited references, when considered separately or in combination.

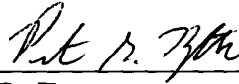
Furthermore, it is respectfully submitted that amended independent Claim 35 is also patentably distinguishable over the cited references for at least the reasons set forth above in relation to independent Claim 13, in addition to the recitations contained therein. In particular, none of the cited references disclose a filter element having a combination of features including a discharge layer which is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>, as currently set forth in independent Claim 35.

In light of the foregoing remarks, this application is in condition for allowance and early passage of this case to issue is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #178/48916).

Respectfully submitted,



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Please cancel Claims 14, 23 and 24 without prejudice or disclaimer.

Please amend Claims 13, 16 and 21 as follows:

13. (Amended) A filter element comprising a plurality of filter medium layers joined together such that a fluid to be filtered flows successively through the layers in a flow direction commencing with an inflow layer and ending with a discharge layer, wherein successive layers in said flow direction exhibit an increasing degree of separation and a decreasing storage capacity for particles to be filtered out of said fluid, and wherein said inflow layer is comprised of synthetic fibers of a melt-blown nonwoven web with a weight per unit area of approximately 15 to 150 g/m<sup>2</sup>, and said discharge layer is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>.

16. (Amended) A filter element according to claim 15, wherein an intermediate filter medium layer located between the inflow-side filter medium and the outflow-side filter medium comprises [an optionally calandared] a compressed melt-blown nonwoven web having a weight per unit area of 15 to 150 g/m<sup>2</sup>.

21. (Amended) A filter element according to claim 13, wherein at least one of the cellulose-containing filter layers includes up to but not including 50% of synthetic fibers.

35. (Amended) A filter element comprising a plurality of filter medium layers joined together such that a fluid to be filtered flows successively through the layers in a flow direction commencing with an inflow layer and ending with a discharge layer, wherein successive layers in said flow direction exhibit an increasing degree of separation and a decreasing storage capacity for particles to be filtered out of said fluid, and wherein said inflow layer is comprised of synthetic fibers of a melt-blown nonwoven web with a weight per unit area of approximately 15 to 150 g/m<sup>2</sup> or of a predominantly cellulose-containing filter paper, with a weight per unit area of 50 to 200 g/m<sup>2</sup>, and said discharge layer is comprised of a predominantly cellulose-containing compressed filter paper having a weight per unit area of about 50 to 200 g/m<sup>2</sup>.